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ABSTRACT

Career education programs, such as co-operative education, have been shown to influence career development. The purpose of this study was to investigate whether secondary school co-operative education had the benefit of enhanced career maturity, as measured by the Career Development Inventory. An experimental design called the Solomon four-group design was employed. This design entails randomly creating four comparable groups: control and experimental groups that undergo both pre- and post-tests and control and experimental groups that take a post-test only. The experimental groups consisted of select students randomly assigned to participate in first semester co-operative education, while the control groups consisted of those participating in second semester co-operative education. No statistically significant differences were evident between the experimental and control groups' pre- and post-test standard score changes. Students selected for co-operative education were noted as having started at a higher level of career maturity than the norming group. Another observation was that more students, with initial scores below the fortieth percentile, experienced the greatest change compared to those starting above the sixtieth percentile. While the results produced were non-significant, this design is suggested for use in further research. Further exploration of longitudinal evidence on the relationship between secondary school co-operative education and career maturity is encouraged. Contains 34 references. (Author/BF)

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ED 379 549

CAREER MATURITY:

Effects of Secondary School Co-operative Education

by

Jan Varner

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CAREER MATURITY:

Effects of Secondary School Co-operative Education

by

Jan Varner
Honours Bachelor of Business Administration
Wilfrid Laurier University, 1980

RESEARCH PAPER

Submitted to the School of Business and Economics
in partial fulfilment of the requirements
for the Master of Business Administration degree
Wilfrid Laurier University
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ABSTRACT

Super (1990) proposes that experiential learning is one of the processes that cultivates the behaviours used to respond to new situations and to cope with career development tasks, thus developing career maturity. Career education programs have been shown to influence career development and co-operative education is viewed as a career education program. Past research linking career education, experiential or otherwise, and career development has been conducted at the elementary and secondary school levels whereas past research specifically linking career development and co-operative education has been conducted at the post-secondary level. No Canadian research was found linking secondary school co-operative education to career maturity. The purpose of this study was to investigate whether secondary school co-operative education had the benefit of enhanced career maturity, as measured by the Career Development Inventory. An experimental design called the Solomon four-group design was employed. This design entails randomly creating four comparable groups; control and experimental groups that undergo both pre- and post-tests and control and experimental groups that take a post-test only. The experimental groups consisted of select students randomly assigned to participate in first semester co-operative education; the control groups consisted of those participating in second semester co-operative education. No statistically significant differences were evident between the experimental and control groups' pre-and post-test standard score changes. It is interesting to note that the students selected for co-operative education started at a higher level of career maturity than the norming group. Another interesting observation was that more students, with initial scores below the fortieth percentile, experienced the greatest change compared to those starting above the sixtieth percentile. Rather than be discouraged by the non-significance of the results, others are encouraged to use this design for further research and to explore longitudinal evidence on the relationship between secondary school co-operative education and career maturity.

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INTRODUCTION

Co-operative education (co-op) students, teachers and placement supervisors laud the benefits of the co-op experience. The purpose of this study is to investigate whether secondary school co-op has the benefit of enhanced career maturity, as measured by the Career Development Inventory.

Co-op in North America was initiated by educators at the post-secondary level as early as 1906. The first co-op program in Canada began in 1957 at the University of Waterloo. In 1970, the first secondary school co-op program was initiated.

The Waterloo Region Catholic School Board's (W.R.C.S.B.) co-op program began in 1985 with a pilot class at St. Jerome's High School. The program grew quickly and by 1987 included all five Catholic secondary schools within the Waterloo Region. At present, there are 40 co-op teachers delivering co-op to approximately 300 students per semester at all curriculum levels (Advanced, General and Basic). Senior level (grades 11 ,12 and Ontario Academic Credit-OAC) students apply to participate in co-op and if accepted, are placed in training stations within the local community. The W.R.C.S.B.'s co-op program has included the development of support structures such as:

- a Co-operative Education Procedures Handbook for program consistency,
- a computerized training plan system accessible by all co-op teachers,
- standardized in-school curriculum for the pre-placement time period and the weekly integration sessions,
- a database of over 1000 placement sites that can be accessed by the schools for booking placements,
- a central co-op office with a Co-op Co-ordinator, Resource Advisor, and Resource Teacher.

The Ontario Ministry of Education and Training's (M.O.E.T.) Goals of Education (1989) include the goal of helping each student to acquire skills and attitudes that will lead to satisfaction and productivity in the world of work. Co-op programs throughout the province aim to meet this goal. Co-op, as described in the M.O.E.T.'s Co-op Policies document (1989), is an experiential mode of learning, delivered under M.O.E.T. subject

guidelines, that integrates academic study and classroom theory with experiences at the work site. Thus co-op programs may be viewed as experiential career education programs that enable a student to acquire skills and attitudes that will lead to satisfaction and productivity in the world of work.

Career Development

One way to view career education is as a developmental process. Both Ginzberg (1951) and Super (1957), as reported in Krumboltz and Hamel (1982), view career development as an ongoing and orderly process. Ginzberg views it as an orderly developmental process that mainly spans the adolescent years, with the transition from the 'tentative' stage to the 'realistic' stage occurring around 17 years of age. Career development, as Super theorizes, is a lifelong process characterized as a sequence of growth, exploration, establishment, maintenance, and decline, and these stages may in turn be subdivided into (a) the fantasy, tentative, and realistic phases of the exploratory stage and (b) the trial and stable phases of the establishment stage. Super proposes that movement through this developmental process is the result of an individual successfully dealing with a series of developmental tasks:

> Acquiring career-relevant competence involves confronting at each life stage a set of typical and necessary problem-solving experiences called vocational-developmental tasks. Mastery of vocational-developmental tasks enlarges the repertoire of coping skills and dispositions and provides the basis for the successful encounter of developmental tasks at the next life stage. The level of mastery (of skills, knowledge, self-understanding, attitudes) that an individual has achieved at any point in his or her career development is represented by the summarizing concept of career maturity.[1]

[1]Krumboltz, John D. and Hamel, Daniel A.(1982). *Assessing Career Development.* Mayfield Publishing Company. Palo Alto, CA. p. 28.

Definition of Career Maturity

Career maturity is a central construct in Super's (1974) theory of vocational behaviour and necessitates an assessment of an individual's level of vocational progress in relation to developmental tasks. Super further extends his interpretation to work experiences by stating that "work ... satisfactions depend[s] upon the extent to which an individual can implement his [her] self-concept through his [her] occupational role"[2]. Super (1990) proposes that experiential learning is one of the processes that cultivates the behaviours used to respond to new situations and to cope with career development tasks, thus developing career maturity. Super conceived of career maturity as the ability to successfully cope with demands placed on an individual at any given life-career stage and defined it "as the individual's readiness to cope with developmental tasks with which he or she is confronted because of his or her biological and social developments and because of society's expectations of people who have reached that stage of development"[3]. Therefore, career maturity is used to denote the degree of development or the place reached on the continuum of career development from growth to decline.

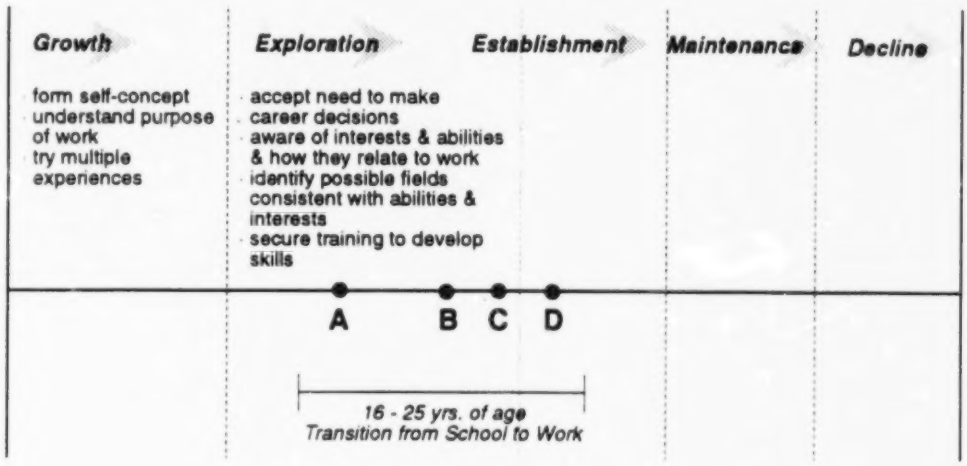
Figure 1 depicts a career development continuum with the growth, exploration establishment, maintenance, and decline stages. This research study is based on the belief that secondary school co-op assists students to move within the exploration stage, for example from point 'A' to point 'B', whereas post-secondary school co-op assists students

[2]Super D.E., and Bachrach, P.B. *Scientific careers and vocational development theory*. New York: Bureau of Publications, Teachers College, Columbia University, 1957. p. 118-120. As reported in Krumboltz, John D. and Hamel, Daniel A. *Assessing Career Development*. Mayfield Publishing Company. Palo Alto, CA. 1982. p. 25.

[3]Super, D.E. (1990) "A Life-Span, Life-Space Approach to Career Development." In D. Brown, L. Brooks, and Associates. *Career Choice an Development: Applying Contemporary Theories to Practice*. (2nd ed.) San Francisco: Jossey-Bass. p. 213.

to move from the exploration stage to the establishment stage, for example from point 'C' to point 'D'.

Figure 1: Continuum



Source: Interpretation of Super's Career Development Continuum.

Fouad and Keeley (1992) state that the relationship between career maturity and work performance may be particularly critical with high school students because the success or failure of these early experiences can have a substantial impact on encouraging or discouraging subsequent job search and career exploration activities. Omvig and others (1975) explain how Crites (1973) postulated that an effective career education program should foster and further the career development of the student and improve their level of career maturity. With the view that co-op is an experiential career education program and that career education contributes to a developmental process with a measurable concept of career maturity, it is believed that W.R.C.S.B.'s co-op experience contributes to participating students' career maturity.

PREVIOUS RESEARCH

Co-operative Education

A number of research studies have outlined the benefits of co-op, with some focusing on the benefits to the employers and others focusing on benefits to the students. Rowe (1988) stated that the claims made for co-op education are many and diverse but the evidence in support of them is limited and largely based on self-report.

The majority of co-op research has analyzed post-secondary (PS) co-op programs and has focused on such items as starting salaries, job titles, benefits to students and benefits to employers. One such study (Rowe 1980) found PS co-op graduates had higher salaries than graduates of a similar PS non-co-op program. Wilson and Lyons (1961), as reported in Rowe (1988), cited "softer" (i.e. communication skills or self-esteem) benefits, in their study that concluded that PS co-op helped students further develop their human relations skills and better oriented them to the world of work than non-co-op graduates. In a study commissioned by the Science Council of Canada, Ellis (1987) found that PS co-op students experience professional and personal development as a result of their participation in co-op.

Williams et al. (1993) compared PS co-op and non-co-op students and found that a co-op experience of less than five months had a demonstrable and measurable impact on co-op students. Using the Tacit Knowledge Inventory for Managers, they discovered that co-op students possessed significantly more practical job knowledge than non-co-ops.

In a Canadian secondary school co-op study, Shaughnessy (1985) administered a pre- and post-test Personal Skills Map (PSM) to co-op and non-co-op students in semestered, and non-semestered groups. The PSM considers 'soft' skills, including self-esteem, assertion, interpersonal comfort and commitment ethic. Shaughnessy found that the co-op students improved in all of the forementioned scales and that the semestered co-op students improved more than the non-semestered co-op students. Although the 'soft' benefits of co-op have been found in research, no Canadian data was found linking secondary school co-op to career maturity.

Career Development and Career Education Programs

Fletcher (1990) refers to Kolb's (1984) model of experiential learning that emphasizes the importance of reflective observation as a critical step in assimilating one's experience into abstract concepts. The W.R.C.S.B.'s co-op program includes such a reflective session on a weekly basis. This is one element of the co-op experience which may differentiate it from other forms of experiential education, and contribute to career development.

The majority of career development research reviewed had been conducted in the United States. Past research linking career education and career development was conducted at the elementary and secondary school level whereas past research specifically linking career development and co-op was conducted at the post-secondary level.

Dillard (1976) used the CMI to test lower- and middle-class black males in grade 6 and found that variables such as socioeconomic status of family had a higher association with career maturity than did self-concept. One Canadian study conducted by Brown (1977), using the Career Development Inventory (CDI), found that secondary school students' career maturity was more a function of grade level than gender or socio-economic status. Fouad et al. (1992) studied secondary school minority youth using the CMI to test career attitudes and found modest relationships between several career maturity attitudes and behaviourial measures related to their summer employment.

Omvig et al. (1975) administered the Career Maturity Inventory (CMI), as a pre- and post-test, to an experimental and control group of grade 6 and grade 8 students. Their results showed a statistically significant increase in the scores of those students who participated in an in-school career education program. The concern associated with interpreting their results is that a non-equivalent control group was used and it is difficult to generalize their findings as the career education curriculum was not prescribed in any way.

Elliott (1982) used an instrument called "Assessment of Career Decision Making" to assess whether participation in a field experience during college would facilitate career development. The field experience consisted of an off-campus work placement for ten weeks. He found that students reported positive attitudes regarding the experience but career clarification was vague or disconnected.

Yongue et al. (1981) studied college level students involved in field exposure career training by administering a pre- and post-test CMI to them. The field exposure career training consisted of a placement at a 'career cluster' work site for a week at a time, for six weeks. Their results indicated that field exposure career training is an effective career education program to increase career maturity.

Co-operative Education and Career Development

The only Canada-wide study conducted regarding the benefits for students of secondary school co-op was recently completed by Human Resources Development Canada (HRDC-1994). The results of a telephone survey cited that the most frequently perceived benefits were the: workplace experience gained, acquisition of specific skills, assistance in planning for the future, raised awareness of work possibilities and the opportunity to test student interests in the field.

Weston (1986) used career development theories to further the understanding of how PS co-op influences the formation of career identity. Weston defined career identity as a relative position on a continuum which extends from identity diffusion to identity achieved. It was found that although co-op students evidenced greater commitment to career than non-co-op students, no significant difference was found between the two groups on career identity. Weston suggests that this unexpected finding might reflect a complexity in the construct of career identity that the measurement did not detect.

Rowe (1988) refers to a study by Brown (1976) on co-op and career development. Brown studied PS co-op and non-co-op alumni and showed that co-op graduates have more stability in their career choice. Weinstein (1980), as quoted in Fletcher (1990), found that college co-op students compared to college non-co-op students, just before graduation, were more certain about their career choice. More directly related to this study's specific hypothesis that a co-op experience affects career maturity, Martello et al. (1980) used the CMI to compare the career maturity of PS co-op and non-co-op liberal arts students and found that the co-op students had higher career maturity.

Review of the aforementioned research demonstrates that career education programs have been shown to influence career development and that co-op is viewed as a career education program. As mentioned, no Canadian research was found linking secondary school co-op to the career maturity construct of career development. Thus, the hypothesis was that the experimental group would experience greater career maturity change than the control group, as measured by the Career Development Inventory standard change scores.

This research study is unique in that its strengths are twofold. First, it provides Canadian data that attempts to relate career maturity, as studied within career development research, with co-op, as studied within co-op education research. Several studies compare co-op versus non-co-op students, raising a concern about the pre-disposed differences possibly associated with those who chose to take co-op in the first place. The second strength addresses this concern. Students accepted into the W.R.C.S.B. co-op program

conveniently divided into control groups (accepted, but not taking co-op until semester two) and experimental groups (accepted to participate in co-op in semester one). This research utilizes a sound quasi-experimental design, the Solomon Design, that more closely resembles experimental design than other co-op research studies found to date.

In summary, the purpose of this study, was to determine if a substantive relationship existed between the W.R.C.S.B.'s secondary school co-op experience and the students' career maturity. This was to be measured by the differences in the standard scores between the pre- and post-test results. Finding such a relationship would support career education programs such as co-op. Conversely, absence of a meaningful relationship between W.R.C.S.B. co-op and student career maturity may lead to the use of other methods of assessing the co-op experience.

METHOD

Subjects

The subjects were senior level students, from five secondary schools, who chose to pursue guidance co-op credits. The sample consisted of 188 students, of which 76 were male and 112 were female. After students had applied for co-op, been interviewed and accepted into the program, they were then randomly scheduled into a timetable. Of the 188 students assigned to participate in guidance co-op, only seven student assignments were not random. The sample was not randomly selected in the fact that co-op students

apply and are selected to participate in the program but they were essentially randomly assigned to the experimental and control groups. This study is considered quasi-experimental because the assignment of students to semester one or semester two co-op is a function of the students' other chosen courses.

Design

The experimental group was participating at a guidance co-op placement from September 1993 through to January 1994. The control group would participate in semester two, from February 1994 through to June 1994. The selection criteria had nothing to do with school attended, age, gender, or grade level.

The co-op class lists for each school were obtained in September 1993 for each semester group. On a per school basis, half of each class was randomly assigned to receive both the pre- and post-test and the other half to receive the post-test only. These subgroups were established to create an experimental design called the Solomon four-group design. This design entails randomly creating four comparable groups; a control and an experimental group that undergo both pre- and post-tests and a control and an experimental group that take a post-test only. The number of students in each group is outlined in Table #1.

Table #1: Initial Participants in Sample

	Experimental Group (Semester One)	Control Group (Semester Two)	Totals
Pre- and Post-Test	46	47	93
Post-Test Only	42	53	95
Totals	88	100	188

The Solomon four-group design enables one to avoid the pre-test treatment interaction which may result in higher post-test scores and may cue subjects to the experimental effect. Although a pre-test is not necessary when random assignment is expected to create equivalent groups, the test was utilized to measure equivalency and to ensure a more sensitive test of the experimental effect.

The majority of the previous research reviewed used a pre- and post-test design with an experimental and control group. The concern with using such a design is that any post-test differences may be the result of a cueing and co-op interaction versus just co-op. The advantages of using a Solomon four-group design are that one can test whether the post-test differences were caused by the treatment, the pre-test, or the combination of treatment-plus-pre-test. It therefore provides an excellent control of threats to internal validity. The Solomon design is seldom used by researchers because it requires four groups of subjects to test only two levels of treatment and requires a sample large enough to break into four reasonably sized groups. The use of a semestered co-operative education program within the W.R.C.S.B. facilitated the use of a Solomon four-group design. With a large sample of 188 students, they could easily be divided into groups, two groups which were to be subjected to the experimental treatment, the

co-op experience, and two which were not to be subjected to this treatment until the second semester. This sample of pre-selected co-op students was unique, as previous research compared students choosing to take co-op with those choosing not to take co-op.

Materials

The instrument used in this study was the Career Development Inventory-School Form (CDI) developed by Drs. Super, Thompson, Lindeman, Jordaan, and Myers (1979) (Appendix A). This inventory was chosen because it:

- has been made available for general use as a sound instrument for assessing career development and vocational or career maturity,
- measures several affective and cognitive aspects of the earlier stages of career development, primarily exploration and establishment,
- can be used in studying cohort groups, to determine group differences and changes over time,
- can be used in evaluating programs and research because CDI results can measure criteria or outcomes. [4]

Super's (1974) model of adolescent vocational maturity includes five dimensions of career development (see Table #2). These are two affective measures, Career Planning and Career Exploration, and three cognitive measures, Career Decision Making, World of Work Information and Knowledge of Preferred Occupational Group.

The Career Planning (CP) dimension measures how involved one is in thinking about the future and making career plans. The 20 items on the CP scale include such things as talking about career plans with an adult, getting a part-time or summer job, and getting a job after finishing school.

The Career Exploration (CE) dimension measures how able one has been to find and utilize good sources of career planning information. The 20 items on the CE scale ask

[4] Career Development Inventory, Volume 1: User's Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1981. pp. 1-3.

the students to rate sources of career information and the usefulness of this information.

The Career Decision Making (DM) dimension measures how able one is to solve problems involving vocational and educational choices. The 20 items on the DM scale outline scenarios of people making career decisions.

The World of Work Information (WW) dimension measures how much one knows about jobs and what it takes to find and succeed at one. The first 10 items on the WW scale assess knowledge of the career development tasks in the Exploratory and early Establishment Stages as described by Super (1990) and the last 10 items assess knowledge of organizational structure and techniques for getting and holding a job.

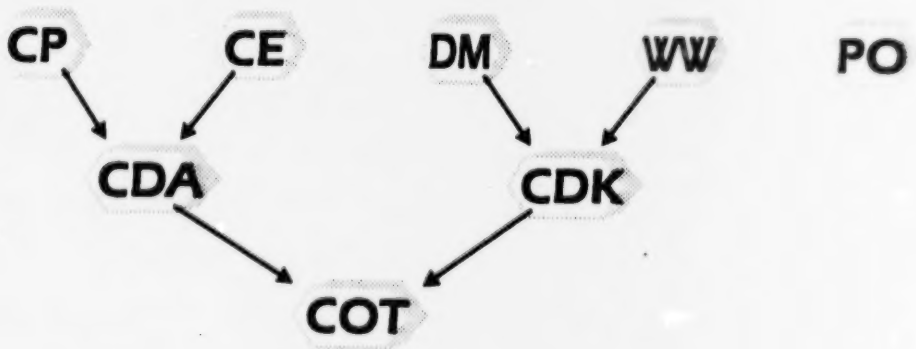
The last dimension, Knowledge of Preferred Occupational Group (PO), measures how much one knows about occupations in the group to which one's preferred occupation belongs. The 40 questions on the PO scale pertain to occupations in 20 broad groups and the data is based on occupational information categories such as data, people and things.

Table #2: Super's Five Dimensions of Career Development

Dimension	Code	Description
Career Planning	CP	• how involved one is in thinking about the future and making career plans
Career Exploration	CE	• how able one has been to find and utilize good sources of career planning information
Career Decision Making	DM	• how able one is to solve problems involving vocational and educational choices
World of Work	WW	• how much one knows about jobs and what it takes to find and succeed at one
Knowledge of Preferred Occupational Group	PO	• how much one knows about occupations in the group to which one's preferred occupation belongs

Group factors that underlie the five dimensions are measured by three more scales. They are Career Development-Attitudes (CDA), Career Development-Knowledge and Skills (CDK), and Career Orientation Total (COT). As depicted in Figure #2, CDA is a combination of CP and CE scores, CDK is a combination of DM and WW scores, and COT is a combination of CDA and CDK scores.[5] The COT approaches a measure of career maturity but is not specifically such as it measures only four of the five dimensions: "COT is best viewed as a composite measure of four important aspects of career maturity."[6]

Figure #2: Relationship of the CDI Scales



The current standardized CDI contains a total of 120 items and requires a total administration time of about one hour. The CDI scale scores are reported in standard score

[5] Career Development Inventory, Volume 1: User's Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1981. p. 2.

[6] Career Development Inventory, Volume 1: User's Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1981. p. 3.

form with a mean of 100 and standard deviation of 20, based on the total standardization group that included students from grades 9 through 12. Each scale has a common base, i.e. the average score of the more than 5,000 students in the norming group. Thus a student who has a standard score of 120, has a raw score that is one standard deviation above the mean of the norming group.

Reliability

The internal consistency measures for CDA, CDK , COT, CP, CE, and WW (see Table #3) are adequate for use in individual counselling and analyzing group differences.[7] The measures for DM and PO are low for making judgments on individuals although they are satisfactory for analyzing group differences. For the purposes of this research, the CDI will prove effective for analyzing group differences.

Table #3: Reliability Measures of the CDI

	Internal Consistency	Test-Retest
Correlations	• .79-.88 for CDA, CDK, COT • .89 for CP • .78 for CE • .84 for WW • .67 for DM • .60 for PO	• .70-.80's for CDA, CDK, COT, CP • .60-.70's for CE, DM, WW, PO

Validity

The CDI content validity is based on prior work on the nature and assessment of career maturity. The Career Pattern Study initiated by Super (Super et al. 1957) and

[7] Career Development Inventory, Volume 1: User's Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1981. p. 4.

further refined by others, has been considered evidence of the validity of the career maturity model. Evidence of the CDI's construct validity exists as it has demonstrated properties such as positive increments in mean scores from lower to higher age groups and minimal differences based on gender.[8] The ability to predict future career success, or predictive validity, must await more extensive and definitive longitudinal research studies.

Data Collection Procedures

The study was conducted with the co-operation of the W.R.C.S.B.'s Co-operative Education Program. The W.R.C.S.B. is located in the Region of Waterloo, in Southwestern Ontario, Canada. This region comprises the cities of Kitchener, Waterloo, Cambridge, and several smaller, rural towns. The total secondary school student population in the region is approximately 22,000.

The W.R.C.S.B. co-operative education program is serviced by a Board Central Co-op Office and is offered at all five W.R.C.S.B. secondary schools. The school-based departments include a School Co-op Co-ordinator and one to five co-operative education teachers.

Prior to collecting this research data, several parameters were established to ensure the respondents were informed and prepared to complete the survey. Two such parameters were obtaining the consent and co-operation of both the W.R.C.S.B. Co-operative Education Co-ordinator and the secondary school principals (Appendix B). Permission was granted by each school's administration to proceed with the research, including instrument administration in the classroom. Another parameter was to contact each of the five School Co-op Co-ordinators and request the time to administer the CDI in the pre-placement classes during the three weeks prior to the students beginning their co-op placements. The School Co-op Co-ordinators were blind to the hypothesis but fully

[8] Career Development Inventory, Volume 1: User's Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1981. p. 17.

supported co-op research and as such were essential in terms of access to the students and follow-up information (i.e. attrition reasons). A pilot administration was done with the W.R.C.S.B. University Co-operative Education Program (UCEP) students to judge timing and appropriateness of the wording of the instructions in the instrument.

The pre-test was administered to the experimental and control groups in September 1993 and was completed prior to the experimental group's beginning their placements at the training sites. The post-test was administered to the experimental group mid-January 1994, during their last co-op class of the semester. The post-test for the control group was administered in early February 1994, during their first co-op class of the new semester. Unfortunately the control group could not be withdrawn from the last classes of their first semester courses as they were reviewing exam material to prepare for their final exams.

All surveys were administered by the researcher with the timing of such testing co-ordinated with the individual co-op teachers. Desire to have the teacher administer the survey, for student comfort, was overridden by the need to split the group in half, leaving the teacher with the remainder of the class. Survey returns were immediate. The participants were asked to leave their scheduled classes to attend the research administration session. A short, five minute address to the students was aimed at familiarizing them with the administration of the instrument, and to facilitate their comfort level in completing such. The reason why research was being conducted was discussed (i.e. M.B.A. & Co-op initiative), a description of the instrument was given, and the approximate time it would take to complete was outlined. Each student was then given the option of participating voluntarily or not. Only one of the 188 students chose not to participate.

To protect the rights of the participants, William Emory's[9] three guidelines were followed. Such safeguards and how they were applied in this study are outlined in Table #4.

Table #4: Application of Emory's Guidelines

Emory's Guideline	Career Maturity Research Safeguards
Begin data collection by explaining to the respondent the benefits expected from the research	• in a brief opening presentation and cover letter, the purpose of the study, why they were asked extra questions, and when they could expect results was discussed
Explain to the respondent that their rights and well-being will be adequately protected and indicate how that will be done	• explained that individual results were confidential (seen only by researcher & professor) and that research interest was in overall group results; only group results would be shared with non-participants
Ensure that interviewers obtain informed consent from the respondents	• explained that the respondents were free not to participate or answer any/or all questions that made them feel uncomfortable; had signed consent on letter

Upon agreement to participate, students were asked to read and sign an information letter to demonstrate their willingness to voluntarily participate (Appendix C). At the time of the testing all participants were asked to complete a short questionnaire concerning their age, school year, course level, part time jobs and willingness to participate in an interview. (Appendix D).

[9] C. William Emory, Donald R. Cooper, *Business Research Methods* Irwin, Illinois, 1991, p. 24.

The experimental pre- and post-test group was asked to complete another short questionnaire at the time of the post-test that asked about their part-time job experience and satisfaction with their co-op experience. This was done to capture any participants who had obtained a part-time job since the pre-test administration.

At the time the post-test was conducted, 35 students had dropped out of the sample for reasons unrelated to the research administration. Of these 35 students (15 from the experimental and 20 from the control group), 18 had changed courses, nine had dropped out of school, four had graduated and found a job, three were away ill, and one declined to participate.

RESULTS

The results are based upon the 153 participants (see Table #5) who were available for, and completed, the post-test. Of those participants, eighty-one students completed the pre- and post-test. The results were examined in many ways including a comparison of sample means to norms, a test of the hypothesis, and supplementary analysis.

Table #5: Post-Test Participants

	Experimental Group (Semester One)	Control Group (Semester Two)	Totals
Pre- and Post-Test	43	38	81
Post-Test Only	30	42	72
Totals	73	80	153

Comparison of Sample Means to Norms

Creation of a histogram of the pre-test standard scores, demonstrated normal distribution of the sample (Appendix E). Comparison of the pre-test mean scores with the

CDI norming group means[10], showed that the pre-test scores were higher on every dimension other than Career Decision Making (DM) (Appendix F). The DM pre-test mean score was 101.3 whereas the norm mean score was 102.65. A breakdown of the pre-test mean scores by grade consistently showed that the grade 11 and grade 12 scores were higher than the norm, other than the grade 11 DM score, that was .65 lower than the norming group (Appendix G). The same held true for a breakdown by gender (Appendix H). The only pre-test mean scores that were lower than the norming group were the females' DM (lower by 4.15) and Career Development-Knowledge and Skills (CDK) (lower by 1.05) scores.

Students' Career Development-Attitudes (CDA) and CDK scores were divided into categories labelled high, medium and low[11]. They were then categorized on their CDA-CDK scores as high-high (H-H), high-medium (H-M), high-low (H-L), medium-high (M-H), medium-medium (M-M), medium-low (M-L), and low-low (L-L). The pre-test results uncovered that 80.3% of the pre- and post-test group were in or above a M-M category compared to 49.2% of the norming group (Appendix I). Breakdown by gender showed that females in the pre- and post-test group had 84.1% above the M-M category (compared to a 60.6% norm), and males had 77.8% above (compared to a 40.7% norm). The norming group had more female students fall into higher CDK categories and more male students fall into higher CDA categories whereas the pre-and post-test group had more female students fall into both the higher CDK and higher CDA categories.

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[10] Career Development Inventory, Volume 1: User's Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1981. p. 26.

[11] Career Development Inventory, Volume 2: Technical Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1984. p. 33. Categories: High CDA:109-166; CDK:113-140, Medium CDA:91-108; CDK:93-112 and Low CDA:25-90; CDK:42-92.

Test of the Hypothesis

Contrary to the initial hypothesis, no statistically significant difference was evident with the standard score changes between the total experimental and control pre-and post-test groups. Presented in Table #6 are the means, standard deviations and *t*-test results associated with the standard score changes from the pre- to the post-test on each of the CDI dimensions.

Table #6: *t*-Test Results Using Standard Change Scores

	Experiment Group 43 Students		Control Group 38 Students	
	Mean	**SD**	**Mean**	**SD**
CP Change: *t* value = 1.10 2 tailed *p* = .277	.1628	14.529	4.1579	18.256
CE Change: *t* value = .28 2 tailed *p* = .783	-.6744	16.421	.3158	15.681
DM Change: *t* value = 1.32 2 tailed *p* = .192	4.3721	12.752	.4737	13.889
WW Change: *t* value = .31 2 tailed *p* = .754	1.7674	10.605	1.0263	10.554
PO Change: *t* value = .17 2 tailed *p* = .867	.6279	15.037	1.2162	16.366
CDA Change: *t* value = .77 2 tailed *p* = .444	-.3256	15.754	2.4737	16.977
CDK Change: *t* value = 1.14 2 tailed *p* = .259	3.1628	9.798	.8158	8.630
COT Change: *t* value = .10 2 tailed *p* = .920	1.8837	11.837	2.1316	10.164

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An ANOVA was executed for each standard score change by gender, course, grade level, school, and semester. There was not enough evidence to indicate a difference among the means (using $p<.05$ and rejection region $F>1.99$). In the event that a significant difference had been observed, the Solomon Design would have isolated the treatment effect; no observation of such meant that this benefit of the Solomon Design would not be utilized.

Supplementary Analysis

Several other *t*-tests were conducted, showing no statistically significant differences:

- between females in the experimental and control groups,
- between males in the experimental and control groups,
- between those with part-time jobs and those without part-time jobs,
- for experimental group comparing those 16 years of age & under with those over 16 years of age,
- for control group comparing those 16 years of age & under with those over 16 years of age,
- for experimental group comparing those 17 years of age & under with those over 17 years of age,
- for control group comparing those 17 years of age & under with those over 17 years of age.

To examine the relationship between the experimental group's pre-test scores and their change scores, the initial and change scores were each divided into five percentile ranks. For example in Table #7, for Career Planning (CP) scores, 37.2% of students started below the 40th percentile but accounted for 66.6% of the change scores above the 80th change score percentile. Consistently, the students who had pre-test scores below the 40th percentile accounted for a larger percentage of the students above the 80th change score percentile than the students who started above the initial 60th percentile (Appendix J). Recognizing that the percentile rank samples are extremely small, these exploratory results are to be interpreted with caution. They are only suggestive of future research possibilities, not necessarily reliable trends.

Table #7: CP Pre-Test Percentile Ranks Compared to Change Percentile Ranks

Pre-Test Scores	Count / Col Pct	Change Score Percentile Ranks: Low 20th	40th	60th	80th	High 100th	Row Total
Low	20th		3	1	1	2	7
			33.3	10	14.3	33.3	16.3
	40th	2	1	2	2	2	9
		18.2	11.1	20	28.6	33.3	20.9
	60th	4	1	3		1	9
		36.4	11.1	30		16.7	20.9
	80th	2	1	3	2	1	9
		18.2	11.1	30	28.6	16.7	20.9
High	100th	3	3	1	2		9
		27.3	33.3	10	28.6		20.9
	Column Total	11	9	10	7	6	43
		25.6	20.9	23.3	16.3	14	100

45.5 — 66.6 — 37.2 — 41.8

DISCUSSION

A multiplicity of explanations could be proposed about why no significant differences were found. It could be hypothesized that no career development took place, although after giving this consideration it was not considered as significant because anecdotal evidence (i.e. student logs, teacher monitor reports, and student interviews) from both students and teachers stated that career development was occurring even though it was not measured. Another interpretation could be that the curriculum delivered in non-co-op courses teaches career content, thus both co-op and non-co-op students may have career development experiences. This may be a contributing factor but was not considered to be the main influence because a review of the curriculum shows that career

content is delivered inconsistently across the school system. Another explanation may be that non-school influences, such as part-time jobs, are teaching career content but this was denied by the students in the exploratory interviews. The following discussion of the results points to an explanation that the secondary school co-op students could in fact be leaving the fantasy and entering the tentative sub-stage of Super's continuum. Initially it was thought that the students were developing from the tentative to the realistic sub-stage but more career experiences may be required to do so. Extrapolating this explanation further would suggest that post-secondary co-op students would have enough experiences to develop from the co-op experience and exhibit greater career maturity. This is supported, as discussed earlier, by Yongue (1981) when he discovered that career maturity at college level increased as a result of co-op. A career education continuum, within the elementary and intermediate grades, could further enhance students' co-op experiences.

Analysis of CDI Results

It is interesting that the students selected for co-op start at a higher level of career maturity than the norming group. This is important to note for at least two reasons. One is that previous co-op research has focused on comparisons between co-op and non-co-op students, two vastly different populations, and as such, past studies purporting benefits of co-op may be questionable. This study's findings were not surprising considering that the students choosing co-op may be considered more career mature for choosing to participate in the program and as such may have little 'room' for growth (relative to their developmental stage). A second reason this is important is that the experiential factors differentiating co-op students from non-co-op students could be applied to design a continuum of programming, from kindergarten to OAC, to assist students in their career development.

A sample programming continuum is outlined in Appendix K. Super (1990) stated that educators need to recognize individual differences in career development:

> Many educators fail to realize that for many youth the development of a sense of internal control, time perspective, self-esteem, and awareness of the world of work, careers, and occupations needs to be cultivated throughout the elementary and high school years and that exploration goes on into the late teens and twenties.[12]

A few sample counselling ideas regarding individual career development are outlined in Appendix L. Another reason these findings were not surprising is that the students are all pre-screened prior to acceptance to the program and as such are screened on the teachers' perceptions of 'maturity'(i.e. attendance, attitude, realism).

The observation that more students, initially below the 40th percentile, accounted for a large percentage of the highest change scores, provides some insights into the co-op experience. Much of the development occurring within these change scores could be tied to the social development component of career maturity and support the self-esteem benefit findings of Shaughnessy (1985). Co-op provides an individualized educational opportunity for each student and as such has two components that provide more individualized attention than a typical classroom. These components include: the attention provided by the placement supervisor (who could be the first adult in a student's life that has chosen to 'teach' them versus the implicit expectation that exists with a parent or teacher); and the teacher's monitoring visits. These components provide a significant amount of time for private, individualized attention. Such attention cannot be provided in a typical classroom because of the time constraints (i.e. 76 minute class period) and the lack of privacy available with approximately 30 students per classroom. Another unique component of the co-operative education experience is the opportunity for reflective

[12] Super, D.E. (1990) "A Life-Span, Life-Space Approach to Career Development." In D. Brown, L. Brooks, and Associates. *Career Choice an Development: Applying Contemporary Theories to Practice.* (2nd ed.) San Francisco: Jossey-Bass. p. 243.

observation that provides the support and relevance the students need to successfully cope with the demands placed on them.

The students who started below the 40th percentile and experienced change above the 80th percentile, could be those who socially developed the most and benefited the most from the individualized attention and reflective observations. A comparison of the learning styles of these students with those who started above the sixtieth percentile could show that co-op benefits those students who learn a certain way.

Analysis of Exploratory Interviews

Eighteen exploratory interviews were conducted with students participating in the pre- and post-test groups (12 were from the experimental group). The students who expressed disappointment about their CDI scores (i.e. their change scores were negative) were surprised by their scores because of their positive experiences with co-op. The satisfaction with co-op sometimes turned out to be a satisfaction with the information obtained during the experience versus satisfaction with the occupation chosen. Many students found it satisfying to find out that the occupation they experienced was not one they would like to pursue after all. Any lack of satisfaction that was expressed was because the placements were perceived as boring, with the emphasis placed on the placement sites not providing enough of a 'hands-on' experience.

Several students found the experience left them feeling confused. This confusion was attributed to having more information to factor into decision making. A few examples of this included the student who thought he wanted to be a graphic artist but realized after his placement in an advertising environment that he would be better suited to the marketing field, although he was unsure of the specific occupation within that field. Another student had a satisfactory placement working with children but decided she wanted to be an archaeologist. It would appear that this experience inspired her to rethink her goals or 'unfreeze' her previous ideals.

All the students, when asked what they perceived as the difference between their part-time jobs and their co-op experiences, expressed a greater satisfaction with their co-op placement. Part-time jobs were viewed as just for monetary gain whereas their co-op placement was described as an opportunity to network in a career field, a chance to be given more responsibility than in a part-time job, and an opportunity to make mistakes without getting fired. The students' comments are supported by Mortimer and Finch (1986), as stated in Stern et al. (1990), who found that jobs offering more autonomy contributed to individuals' self-esteem.

One student went into the co-op experience with high CDI scores, had a poor performance in co-op, and had minimal change scores. Further investigation found that this student's father was a contractor and the student knew all the information associated with that occupation and thus scored high on the CDI. The unfortunate part was that this students' work attitudes on paper where not at all what were displayed in his behaviour. He will some day take over his father's business and he was just 'putting in time' at school.

Gribbons and Lohnes (1968), as described in Seligman (1982), found various patterns of career maturation and five ways of dealing with career development (Appendix M). It is believed that all four patterns: constant maturity, emerging maturity, degeneration, and constant immaturity, existed within this student sample. All ways of dealing with career development were probably in existence but it is surmised that most students' coping behaviour could be classified as floundering or trial.

Implications for W.R.C.S.B. Co-op Program

Much of the apparent confusion on the part of the co-op students may be short term as they further explore their options and in turn rule out various alternatives. It would be prudent of the W.R.C.S.B. to study the co-op process to see how, and if, the co-op students' experiences are related back to student skills, interests, resources, and goals.

Perhaps there is short term confusion for long term gain; this may become apparent in a survey sent to former W.R.C.S.B. co-op students to examine where they are now and the influence co-op had on their career development (Appendix N).

Development of a W.R.C.S.B. career education program, from Kindergarten to OAC, including developmental career counselling, could capitalize upon the strengths of a developmental process. A continuum of programming could facilitate the processes that are instrumental to greater career maturity.

Future Research

As a co-op practitioner, it was surprising when no significant differences existed between the experimental and control groups. Fortunately, this research study ensured that the lack of evidence was not related to a poor research design. Rather than be discouraged by the non-significance of the results, I would encourage others to use this design for further research and explore longitudinal evidence on the relationship between secondary school co-op and career maturity.

Other research to consider for Canadian secondary school co-op programs would be the comparison of the guidance co-op program to other subject-specific co-op programs such as accounting, law, or family studies. A comparison of the career maturity of post-secondary co-op students that participated in a secondary school co-op program to those who did not could also be considered. Future research should attempt to quantify this research study to provide more information about co-op and its relationship to career maturity.

Appendix A

Career Development Inventory School Form

Developed by Drs. Donald E. Super, Albert S. Thompson, Richard H. Lindeman, Jean P. Jordaan, and Roger A. Myers at Teachers College, Columbia University

Career Development Inventory

DIRECTIONS

The Career Development Inventory asks you about school, work, your future career, and some of the plans you may have made. Answers to questions like these can indicate what kind of help may be useful to you in planning and preparing for a job after graduation, for vocational and technical school training, or for going to college before pursuing your occupational career.

The Inventory consists of two parts. The person who administers it will indicate whether you should complete the first part, the second part, or both parts. Part I (Career Orientation) begins on the next page and Part II (Knowledge of Preferred Occupation) begins on Page 11.

All your answers to the CDI go on a special answer sheet which should accompany this booklet. Make no marks of any kind on this booklet. Record your answers by blackening the appropriate lettered boxes on the answer sheet, using a #2 lead pencil. **Do not use a pen.** If you change an answer, please erase thoroughly.

Before opening the test booklet, fill in your name and the other information requested on the upper third of the answer sheet, following any special instructions of the person administering the inventory. Fill in the name boxes carefully.

When directed to do so, open this booklet and begin. Please answer every question. If you are not sure about an answer, guess; the first answer that comes to you is often the best one. Work rapidly, but be careful to make your marks in the right boxes for each question.

Consulting Psychologists Press, Inc., Palo Alto, California

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Appendix B

Memo to Secondary School Principals

M E M O R A N D U M

WATERLOO REGION ROMAN CATHOLIC SEPARATE SCHOOL BOARD

DATE: September 30, 1993

MEMO TO: Family of School Superintendents
Secondary School Principals and Vice Principals
Guidance Department Heads
School Co-op Co-ordinators

FROM: Gail D. Freiburger, Co-op Co-ordinator
Jan Varner, Co-op Placement Research Advisor

SUBJECT: Co-operative Education Research Study
in Collaboration with Wilfrid Laurier University
MBA Program

FILE NO:

During the 1993-94 school year, the Co-operative Education Department will conduct a research project that will measure career maturity as an outcome of a co-operative education experience for secondary students.

Please find attached a summary outline of the research project and design method.

Only co-operative education students will be involved and all permission procedures will be followed. Thank you for your co-operation with the pre-testing of Semester II co-op students.

If you wish further information, please contact Gail or Jan.

c: Bill Brown, Director of Education
Tony Truscello, Superintendent of Education - Curriculum

Appendix C

Student Information Letter

Dear Semester One/Semester Two Co-op Student:

I am again requesting your voluntary participation in completing this second Career Development Inventory. A comparison of the your inventory scores from the first test and from this test will assist me in examining your career maturity over the past semester.

As a reminder, this study is being conducted in co-operation with the Masters of Business Administration Program at Wilfrid Laurier University. The inventory completion will take approximately 45 minutes to complete. If you wish to quit the inventory completion and return to class at any time, please feel free to do so.

The information collected in this survey is strictly confidential: no one except the researcher will see your responses to the questions. Group responses, not individual responses, are of interest in this research.

It is believed that the results of this study will be of great benefit to students and teachers involved in the co-operative education program. This study is expected to be completed prior to the end of the school year. If you wish to review the results, please contact your co-operative education teacher or myself.

Your assistance in this research would be greatly appreciated.

Sincerely yours,

Jan S. Varner
Placement Resource Advisor
(extension 303)

I have read the above and agree to voluntarily participate:

_____

Appendix D

Student Questionnaire

Please complete the following (place a checkmark where applicable):

1.) What age are you?

___ <15 ___ 17
___ 15 ___ 18
___ 16 ___ >18 years

2.) What year/grade level are most of your courses?

___ year one/grade nine
___ year two/grade 10
___ year three/grade 11
___ year four/grade 12
___ year five/OAC

3.) Do you have a part-time job presently or have you had a part-time job in the past (check all appropriate ones)?

___ No
___ Yes, summer jobs only
___ Yes, school year only
___ Yes, both summer jobs and school year jobs

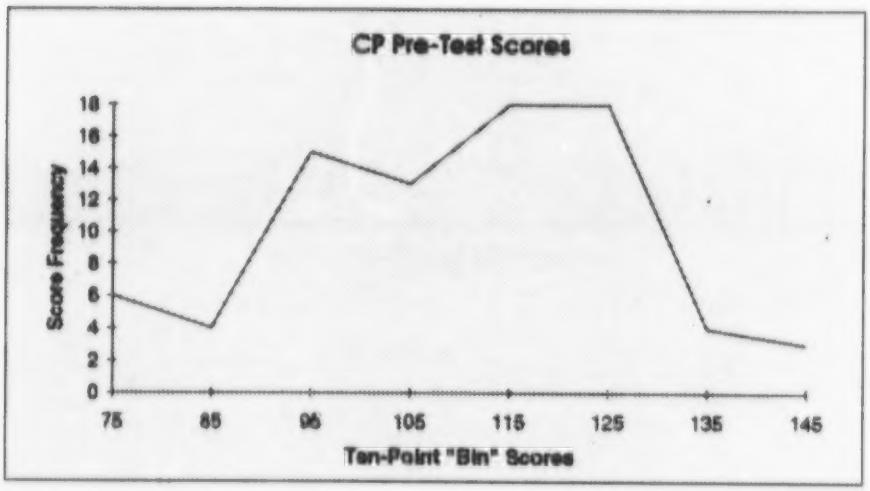
4). Would you consider having a follow up interview to this test at a later date?

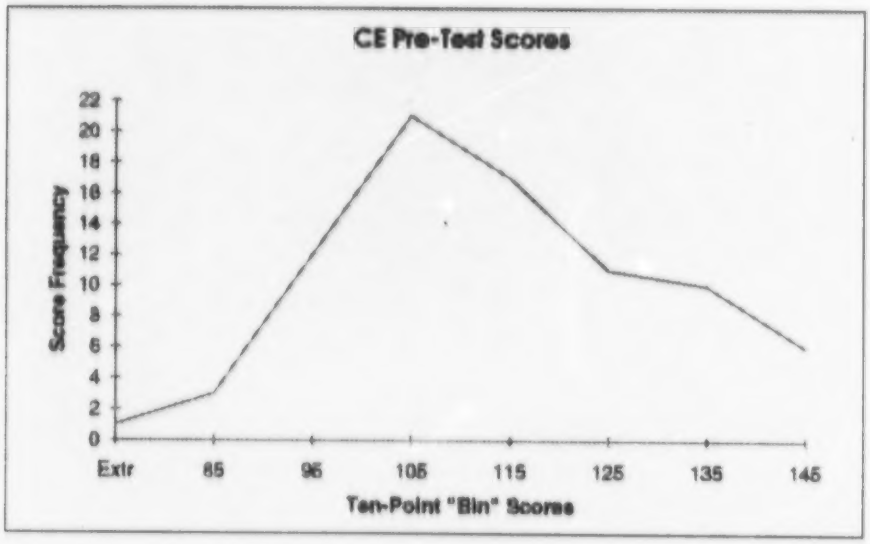
___ Yes
___ No

5). **Semester One Students Only:** Did you find that your co-op experience this semester was satisfactory? Please answer yes or no and give a brief description of why you thought it was or wasn't satisfactory. (Use the back of this sheet to answer if you need it.)

Appendix E

Histograms of Pre-Test Scores





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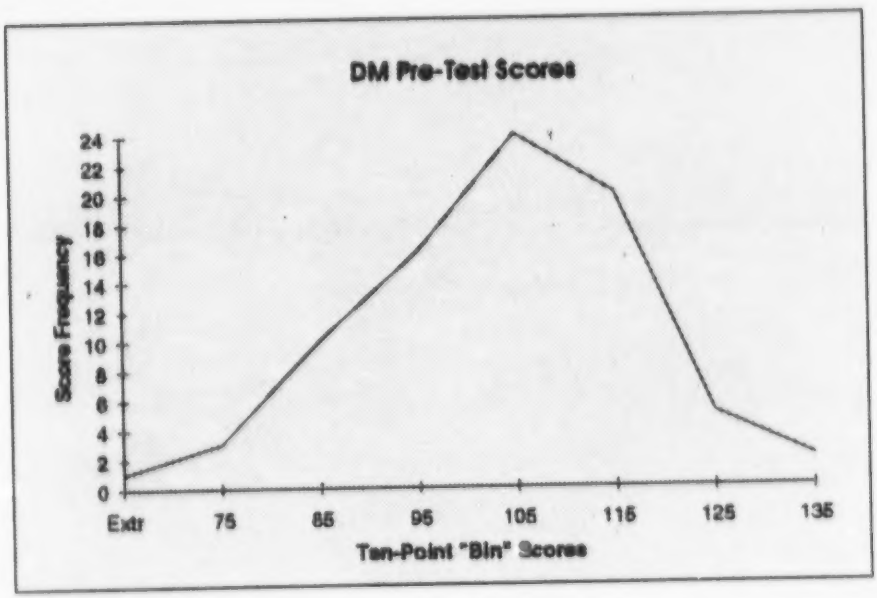

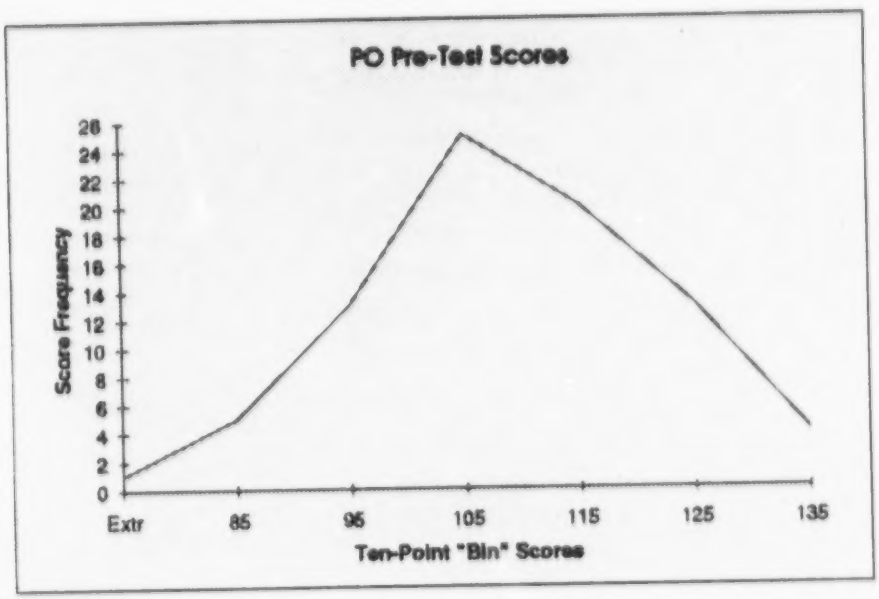

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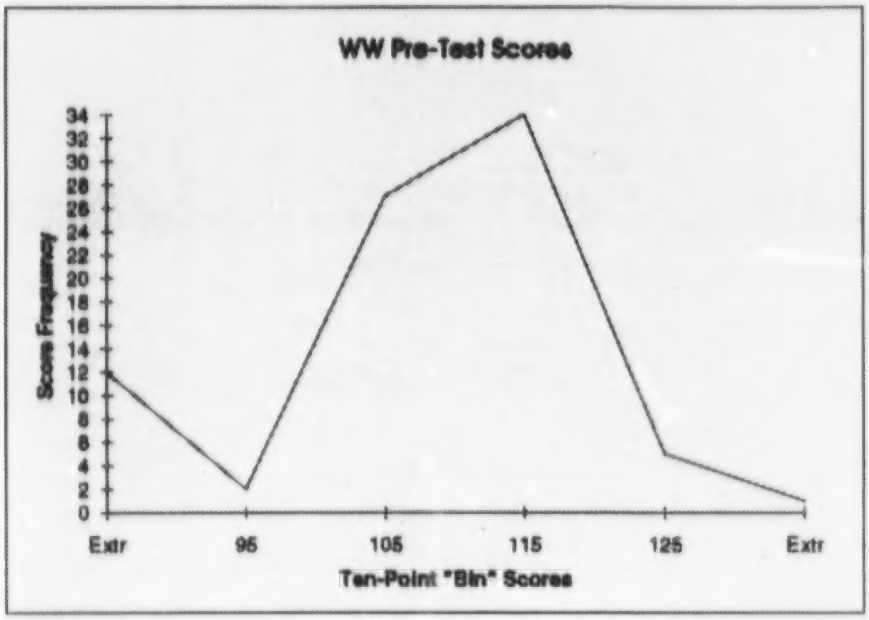

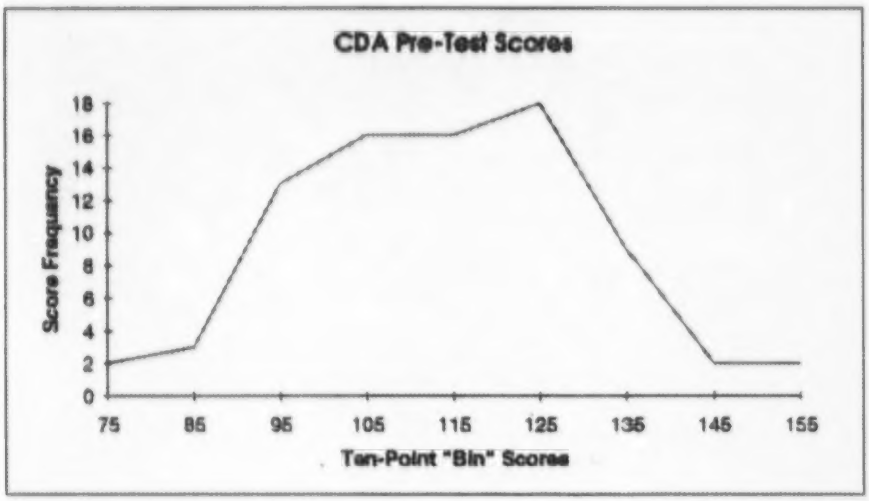

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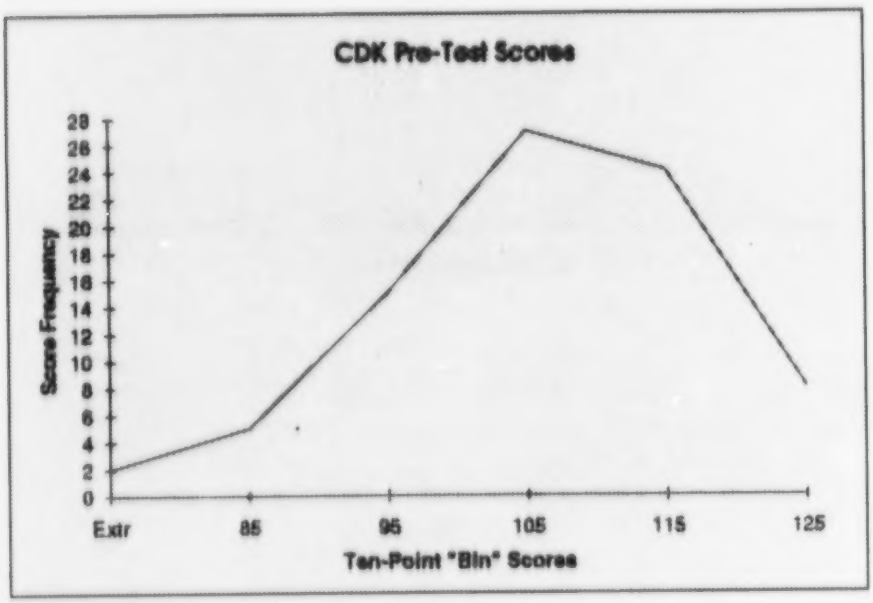

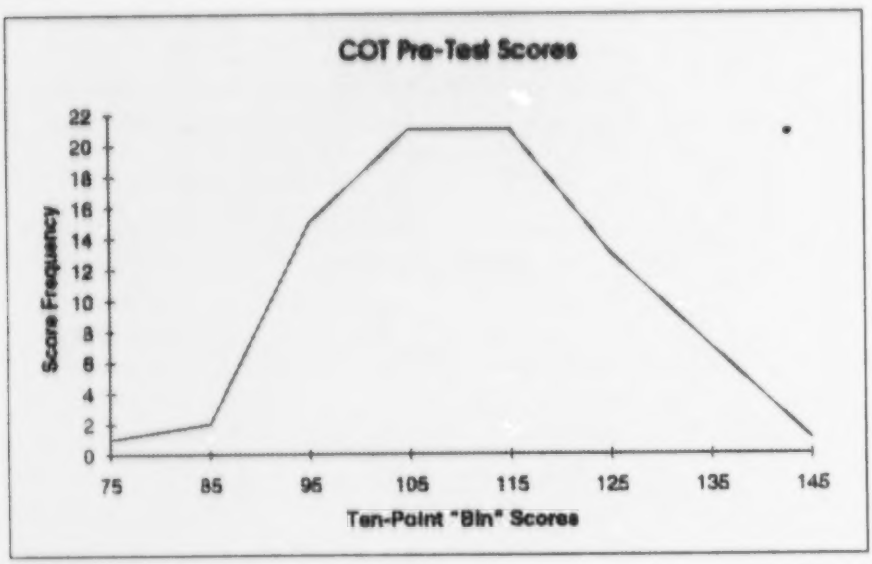

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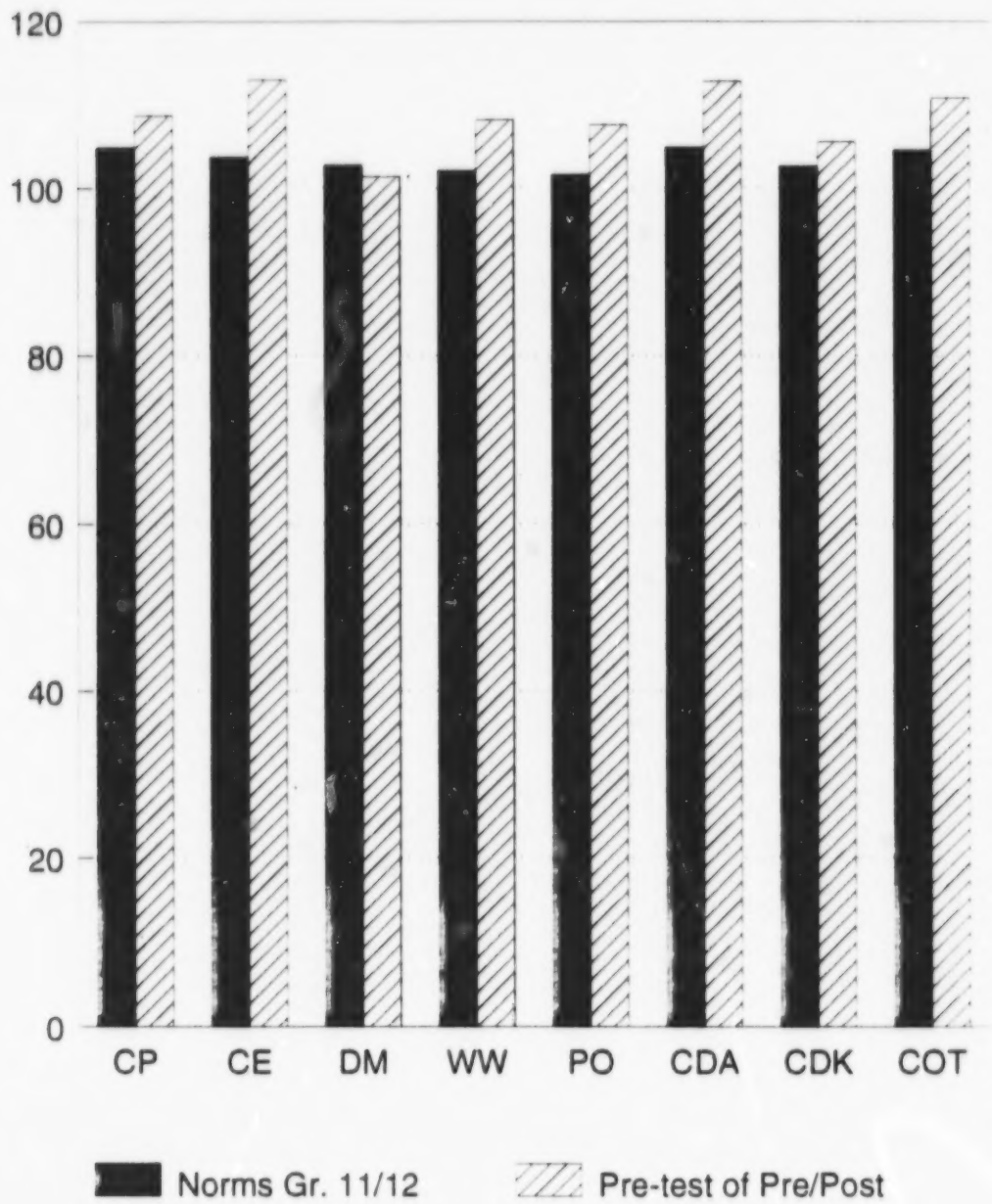
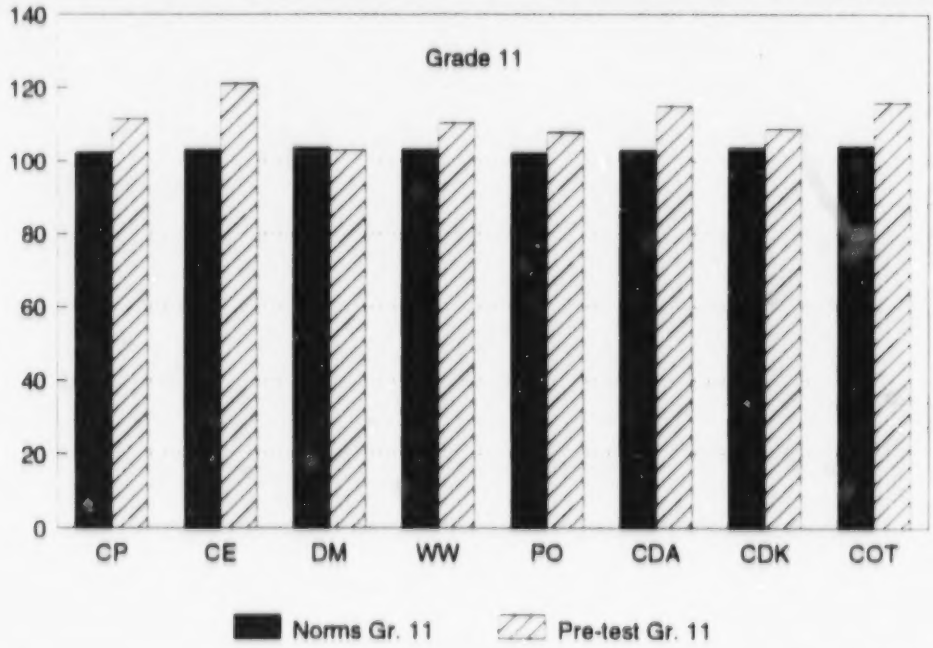
Appendix F

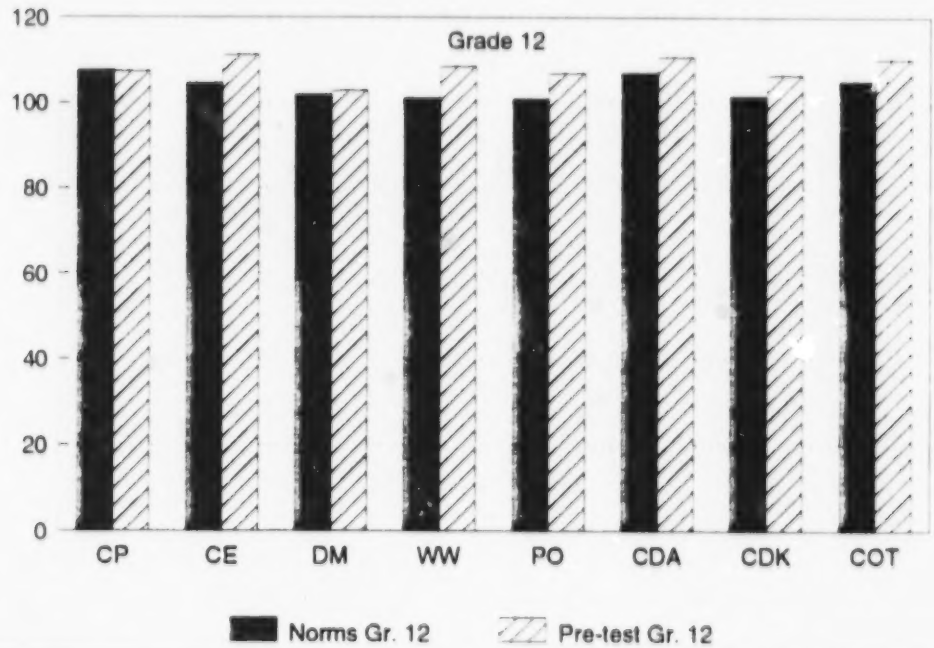
Pre-Test Standard Score Means Compared to CDI Norm Means



Appendix G

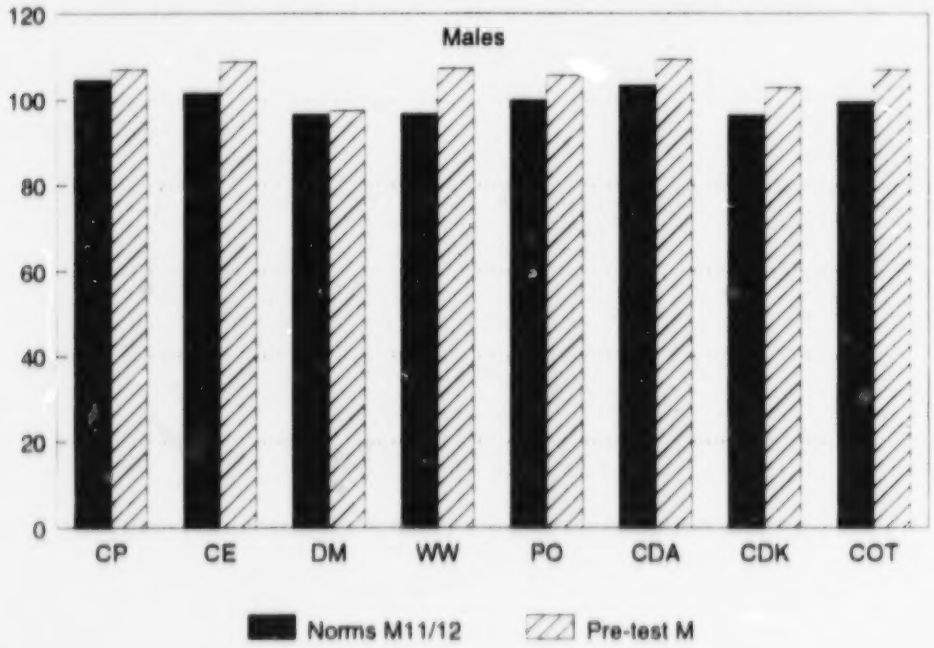
Gr. 11 & Gr. 12 Pre-Test Standard Score Means Compared to CDI Norm Means

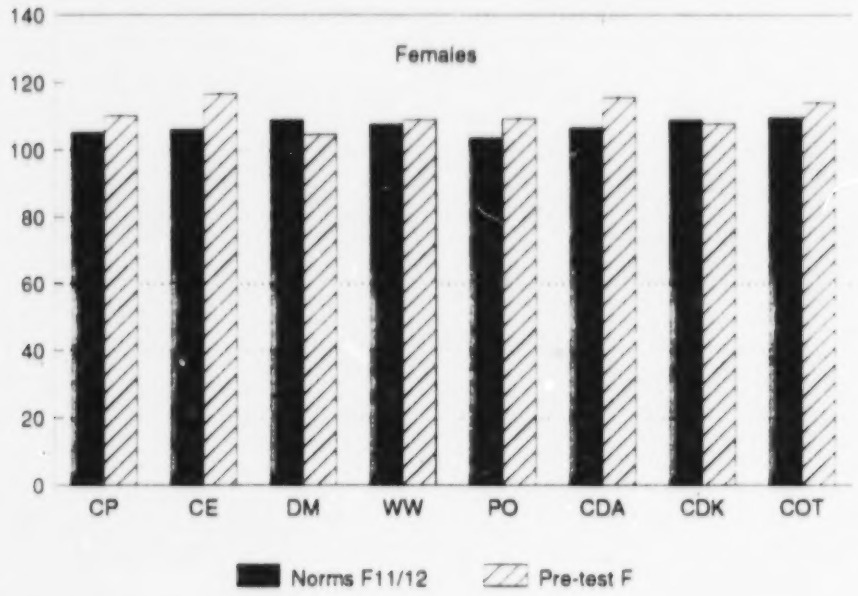




Appendix H

Male & Female Pre-Test Standard Score Means Compared to CDI Norm Means





Appendix I

CDA and CDK Scores Categorized

Category	Total Group%	Females	Males
H-H	25.9	29.5	22.2
H-M	27.2	27.3	27.8
H-L	6.2	4.5	8.3
M-H	13.6	15.9	11.1
M-M	13.6	11.4	16.7
M-L	3.7	4.5	2.8
L-H	3.7	6.8	0.0
L-M	6.2	0.0	11.1
L-L	0.0	0.0	0.0

Appendix J

Pre-Test Percentile Ranks Compared to Change Score Percentile Ranks

CE Pre-Test

Pre-Test Scores	Count / Col Pct	Change Score Percentile Ranks: Low 20th	40th	60th	80th	High 100th	Row Total
Low	20th		1	1	3	4	4
			10	12.5	37.5	44.4	20.9
	40th	2		1	4	1	8
		25.0		12.5	50	11.1	18.6
	60th	2	2	1		1	6
		25	20	12.5		11.1	14
	80th	2	2	3		2	9
		25.0	20	37.5		22.2	20.9
High	100th	2	5	2	1	1	11
		25.0	50	25	12.5	11.1	25.6
	Column Total	8	10	8	8	9	43
		18.6	23.3	18.6	18.6	20.9	100

50.0 → 25.0 → 55.5 → 39.5

33.3 → 46.5

DM Pre-Test

Pre-Test Scores	Count / Col Pct	Change Score Percentile Ranks: Low 20th	40th	60th	80th	High 100th	Row Total
Low	20th		2	3	2	3	10
			28.6	27.3	25	30.0	23.3
	40th		2	2	2	1	7
			28.6	18.2	25	10.0	16.3
	60th	3	2	4	1	5	15
		42.9	28.6	36.4	12.5	50	34.9
	80th	1	1	1	2	1	6
		14.3	14.3	9.1	25	10.0	14.0
High	100th	3		1	1		5
		42.9		9.1	12.5		11.6
	Column Total	7	7	11	8	10	43
		16.3	16.3	25.6	18.6	23.3	100

57.2 → 40.0 → 39.6

25.6

WW Pre-Test

Pre-Test Scores	Count / Col Pct	Change Score Percentile Ranks: Low → High 20th	40th	60th	80th	100th	Row Total
Low	20th		1 14.3	1 7.7	1 25	7 58.3	10 23.3
	40th	5 71.4	1 14.3	4 30.8	1 25	4 33.3	15 34.9
	60th	2 42.9	28.6	3 36.4	1 12.5	1 50	7 34.9
	80th		1 14.3	1 7.7	1 25		3 7.0
High	100th		4 57.1	4 30.8			8 18.6
	Column Total	7 16.3	7 16.3	13 30.2	4 9.3	12 27.9	43 100

91.6 → 58.2 (20th + 40th)

25.6 (80th + 100th)

PO Pre-Test

Pre-Test Scores	Count / Col Pct	Change Score Percentile Ranks: Low → High 20th	40th	60th	80th	100th	Row Total
Low	20th				3 33.3	5 55.6	8 18.6
	40th	2 22.2	1 11.1	2 28.6	3 33.3	2 22.2	10 23.3
	60th	2 22.2	1 11.1	4 57.1	2 22.2	1 11.1	10 23.3
	80th	2 22.2	4 44.4	1 14.3	1 11.1		9 18.6
High	100th	3 33.3	3 33.3			1 11.1	7 16.3
	Column Total	9 20.9	9 20.9	7 16.3	9 20.9	9 20.9	43 100

77.8 → 41.9 (20th + 40th)

55.5 → 34.9 (80th + 100th)

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CDA Pre-Test

Pre-Test Scores	Count / Col Pct	Change Score Percentile Ranks: Low → High 20th	40th	60th	80th	100th	Row Total
Low	20th			3	1	5	9
				27.3	14.3	62.5	20.9
	40th	2	2	1		1	6
		20.0	28.6	9.1		12.5	14.0
	60th	1	1	2	4	1	9
		10	14.3	18.2	57.1	12.5	20.9
	80th	4	3	1	1	1	10
		40.0	42.9	9.1	14.3	12.5	23.3
	100th	3	1	4	1		9
High		30.0	14.3	36.4	14.3		20.9
	Column Total	10	7	11	7	8	43
		23.3	16.3	25.6	16.3	18.6	100

70.0 → 75.0 → 34.9 (20th + 40th + 60th)

62.5 → 44.2 (80th + 100th)

CDK Pre-Test

Pre-Test Scores	Count / Col Pct	Change Score Percentile Ranks: Low → High 20th	40th	60th	80th	100th	Row Total
Low	20th		2	4	3	3	12
			50	30.8	42.9	27.3	27.9
	40th	2			1	4	7
		25.0			14.3	36.4	16.3
	60th	1	1	3	2	3	10
		12.5	25	23.1	28.6	27.3	23.3
	80th	3	1	3	1		8
		37.5	25	23.1	14.3		18.6
	100th	2		3		1	11
High		25.0		23.1		9.1	14.0
	Column Total	8	4	13	7	11	43
		18.6	9.3	30.2	16.3	25.6	100

62.5 → 63.7 → 44.2 (20th + 40th)

37.5 → 32.6 (80th + 100th)

COT Pre-Test

Pre Test Scores	Count / Col Pct	Change Score Percentile Ranks: Low 20th	40th	60th	80th	High 100th	Row Total
Low	20th	1	1	3	1	4	4
		14.3	10	27.3	14.3	50	23.3
	40th		2	3	1	1	7
			20	27.3	14.3	12.5	16.3
	60th	2	1		2	3	10
		28.6	10		28.6	37.5	18.6
	80th	2	4	2	2		10
		28.6	40	18.2	28.6		23.3
High	100th	2	2	3	1		8
		28.6	20	27.3	14.3		18.6
	Column Total	7	10	11	7	8	43
		16.3	23.3	25.6	16.3	18.6	100

57.2 → 28.6 (Low 20th) and 28.6 (High 100th)

62.5 → 39.6

41.9

Appendix K

Career Education Continuum

JK - (OAC)

JK

Workshops (hands on) i.e. woodworking projects; "CAD" session

Guest Speakers

Field Trips

Parent Job Shadowing

Career Days

Small group visits to business/industry (Tours)

Job Shadowing (twinning with Co-op student)

Telephone Interviews

Person / Person Interviews

Career Fairs

Volunteer (Non-credit experience) Activities

Job Shadowing

Pathmakers (speakers; shadow on campus)

Choices (interest/aptitude testing)
- expand to include other software
- 2 options
- job futures

DISCOVER

Experiential learning credits; project driven learning
- Food Services (Resurrection) for cafeteria
- Do someone's basement for construction

Work Experience

Co-operative Education (across the curriculum)

OAC

Retraining Initiatives

This developmental approach could be expanded JK - OAC keeping in mind 3 phases of career development:

Awareness: JK - 6	*Exploration:* 7 - 9	*Decision-making Preparation:* 10 —>

Gail Freiburger Co-op Education

Appendix L

Individual Career Development Counselling

1) If an individual scores low on scales that assess planning and exploration then counselling needs to focus on arousing interest in these areas; if a student plans but lacks knowledge of the world of work then counselling can focus on wide-ranging exploration to increase knowledge of possible options; i.e. Is the work role important to this individual? If not, CDI scores may show up as low. The options would be to increase the work role importance or focus on other roles in life.[13]

2) In program planning, analysis of the item responses in CP and CE are particularly valuable: CP item responses identify the planning activities students are engaged in, whereas CE items reveal what career-exploration resources the students are using and how much help the students think they are getting.[14]

3) People who are at different stages of development may need to be counselled in different ways, and since people at similar stages but with different levels of career maturity also need to be counselled in different ways, it is important to learn how to use [Super's] life stages and tasks to make diagnoses and select appropriate intervention strategies.[15]

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[13] Career Development Inventory, Volume 1: User's Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1981. p. 2.

[14] Career Development Inventory, Volume 1: User's Manual. Consulting Psychologists Press, Inc. Palo Alto, CA. 1981. p. 2.

[15] McDaniels, Carl, and Gysbers, Norman C. *Counselling for Career Development: Theories, Resources, and Practices.* Jossey-Bass Publishers, San Francisco. 1992. p. 51.

Appendix M

Gribbons' and Lohnes' Career Maturity Findings[16]

Four patterns of career maturity:

- constant- consistent pursuit of a realistic stated goal
- emerging- passage through the appropriate developmental stages and tasks
- degeneration- progressive deterioration of hopes and accomplishments, accompanied by frustration and loss of status
- constant immaturity- persistent fixation on unrealistic and fantastic goals, with no progress in achieved level

Five ways of coping with career development:

- floundering- changing occupational choice from one cluster of occupations to another with no increase in achieved level
- trial- changing occupational choice within an occupational cluster, leading to a narrowing or refinement of career goals
- stagnation- remaining developmentally stationary for too long with resulting deterioration of status or opportunity
- instrumentation- goal-directed change
- establishment- stabilizing in a rewarding career.

[16] Seligman, Linda. *Assessment in Developmental Career Counselling*. Carroll Press Publishers: Cranston, R.I. 1982. p. 3

Appendix N

Survey of Former Co-op Students

CO-OPERATIVE EDUCATION

Please complete this survey and mail back to us in the pre-stamped, self-addressed envelope or FAX to the attention of Gail Fiebiger at (519) 578-5520. Thank you!

1. Our files indicate that your Co-op Placement was in the field of _____

   Is this your present career field? ☐yes ☐no If no, what is your present career field? _____

2. What are you doing now? *(check off as many as apply)*

   a) Education:
   - ☐university
   - ☐college
   - ☐other _____

   b) Employment (☐ full time or ☐ part time):
   - ☐employed in the field of _____
   - ☐own a business in the field of _____
   - ☐looking for work in the field of _____

3. Did your Co-op Placement help you with the following employability skills?

	YES	NO
a) Access and apply specialized knowledge from various fields (e.g., skilled trades, technology, physical sciences, arts and social sciences)?		
b) Self-esteem?		
c) Confidence?		
d) Honesty?		
e) Integrity?		
f) Strengthen initiative, energy and persistence to get the job done?		
g) Act logically, problem-solve and make decisions?		
h) Map out future educational plans?		
i) Decide on a career area?		
j) Reaffirm that you wanted a career in the field of your Co-op placement?		
or		
k) Realize you did not want a career in the field of your Co-op placement?		

4. Was this a more significant experience for you compared to other secondary school courses you took?

   ☐yes ☐no ☐as significant as any other course

5. a) What were the **least positive** features of your Co-operative Education experience?

   b) What were the **most positive** features of your Co-operative Education experience?

Freedom of Information: Pursuant to subsection 28 (2) of The Municipal Freedom of Information and Protection of Privacy Act, the personal information collected for the purposes of Co-operative Education Programs is collected under the authority of the Education Act, and will be used for the ongoing administration of appropriate co-operative education placements.

Waterloo Region Catholic School Board
91 Moore Ave., Kitchener, Ontario, (519) 578-3660

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